

13 January 2009



Materials Science Division

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EMSL Case No.: 360900049
Sample(s) Received: 01/13/09
Date of Analysis: 01/13/09
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Reported By: J.Newton

## - Laboratory Report -

**Project: Cenosphere Analysis** 

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EMSL Analytical, Inc.

<u>Procurement of Samples and Analytical Overview:</u>

The material arrived at EMSL Analytical's corporate laboratory in Westmont, NJ on 1/13/09. The

package arrived in satisfactory condition with no evidence of damage to the contents. The data reported

herein has been obtained using the following equipment and methodologies.

Methods & Equipment:

Scanning Electron Microscopy (SEM)

Energy-dispersive X-Ray Spectrometry (EDX)

Sample Preparation:

The sample was sectioned by micro-sieve technique resulting in >180um, >90um, >45um and <45um

sub-sections. Initial analysis was performed by light microscopy to observe the general particle size in

reference to the Cenospheres. The >90um, >45um and <45um sub-samples were prepared for

SEM/EDX analysis.

The results are obtained using the methods and sampling procedures as described in the report or as stated in the published standard methods, and are only guaranteed to the accuracy and precision consistent with the used methods and sampling procedures. Any change in methods and sampling procedure may generate substantially different results. EMSL Analytical, Inc. assumes no responsibility or liability for the manner in which the results are used or interpreted. Official, legally defensible reports require hand signatures. Reports with digital signatures are for email and other digital distribution only.

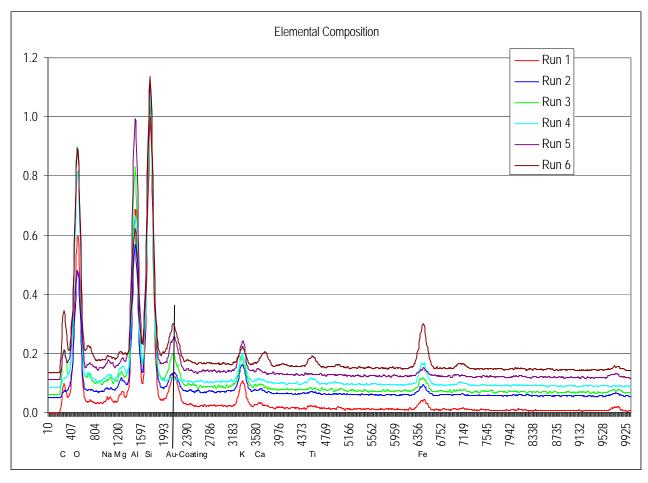


## Results and Discussion:

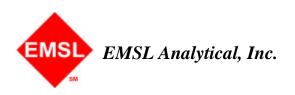
Cenospheres were observed in the sample. The Elemental Composition is predominantly alumino-silicate with lesser concentrations of potassium, calcium, titanium, iron, magnesium and sodium.

Element	K-Factor	(Ratio	to Silico	n)		
Sample	Run 1	Run 2	Run 3	Run 4	Run 5	Run 6
С	0.072		0.125	0.010	0.065	0.179
Na	0.014	0.010	0.015	0.024	0.034	0.016
Mg	0.036	0.046	0.038	0.048	0.032	0.033
Al	0.668	0.493	0.778	0.555	0.838	0.453
Si	1.000	1.000	1.000	1.000	1.000	1.000
P*	0.021	0.017	0.028	0.005	0.028	0.039
s*	0.014	0.014	0.013	0.005	0.014	0.020
Cl				0.005		
K	0.083	0.095	0.116	0.083	0.094	0.049
Ca		0.009	0.008	0.010		0.039
Ti		0.006		0.019		0.023
v						
Cr						
Mn						
Fe	0.031	0.025	0.042	0.070	0.020	0.129
Co						
Ni						
Cu			0.004		0.005	
Zn						

<sup>&#</sup>x27; = Results may be elevated due to gold coating on the sample.



EDX Spectra from six random particles.



Images of the Cenospheres at varying magnifications.

